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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/016,839	12/13/2001	Charles M. Darcangelo	SP01-335	7486
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CORNING INCORPORATED				
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CORNING, NY 14831				
EXAMINER				
LOPEZ, CARLOS N				
ART UNIT		PAPER NUMBER		
1731				

DATE MAILED: 12/05/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>		<b>Applicant(s)</b>	
	10/016,839		DARCANGELO ET AL.	
	<b>Examiner</b>		<b>Art Unit</b>	
	Carlos Lopez		1731	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-16, 18 and 19 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-12, 18 and 19 is/are rejected.
- 7) ☒ Claim(s) 13-16 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. §§ 119 and 120**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All    b) ☐ Some \*    c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet, 37 CFR 1.78.  
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet, 37 CFR 1.78.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                  | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). ____.  |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)         | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____. | 6) <input type="checkbox"/> Other:  |

## **DETAILED ACTION**

### ***Specification***

Applicant is advised that should claim 1 be found allowable, claim 18 will be objected to under 37 CFR 1.75 as being a substantial duplicate thereof. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k). The difference between claims 18 and 1 is that claim 18 recites a known property of glass rods, a gradient refractive index.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1) Claim 1, 4-5, 10-12, and 18-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's admitted prior art (PAT) disclosed in paragraph 3-4 of the specification and in view of Deeren et al (US 3,218,764). Applicant's admitted prior art teaches, "the process for fabricating a GRIN lens involves cutting a desired length of a glass rod having a gradient refractive index and finishing the glass rod into a lens that has the desired dimensional and optical characteristics. The finishing process generally involves several steps. A typical sequence of steps for finishing a lens is as follows: grind the faces of the lens, lap the faces of the lens, polish the faces of the lens, clean

the lens, coat the lens with an anti-reflective material, clean the lens, inspect the lens, and package the lens." As noted by PAT, GRIN lenses are processed one at a time through many or all of the finishing process steps described above, which is a very expensive way of finishing such small lenses. However, the process step of individually cutting each rod into pieces can be maximized by Deeren's method of cutting glass rods. Deeren teaches assembling a plurality of glass rods having a desired length in a side-by-side configuration into a single unit housing formed by an enveloping film 2 (see figures 1-2). The single unit is then cut in slices wherein each slice comprises an array of glass rod pieces 1. Each slice held by an enveloping film 2 facilitates cleaning of the glass rod pieces as a group rather than individually cleaning each glass rod piece once removed from the enveloping film (Col. 3, lines 46-50). Thus, Deeren's method greatly increases the number of glass rod pieces in comparison to cutting each individual glass rod one by one. Similarly, as shown by Deeren, by not removing the enveloping film holding the glass rod pieces as a slice of the assembled unit, the treatment of a plurality of glass piece is facilitated as opposed to treating each individual small glass rod piece. Therefore, at the time the invention was made, it would have been obvious to a person of ordinary skill in the art to manufacture GRIN lenses in the manner taught by Deeren in order to increase the production of glass cut rod pieces as opposed to individually cutting a rod piece one by one. Furthermore, when keeping the glass rod pieces in a slice form and subjecting them to conventional processes such as those noted by PAT, allows for the simultaneous treatment of a plurality of rod pieces and hence increase production of GRIN lenses.

In regards to claims 4-5, the use of split rings is well known means to hold a bundle together. Thus using splint rings for holding the bundle of glass rods of Deeren would be obvious to one of ordinary skill in the art in order to assure that no vibration of the glass rods occurs while they are being cut into slices and the slices are finished.

As for claims 10-12, the PAT discloses the claimed steps.

2) Claims 2-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's admitted prior art (PAT) disclosed in paragraph 3-4 of the specification in view of Deeren et al (US 3,218,764) as applied to claim 1 above and in further view of Neidorf (US 2,436,819). PAT and Deeren are silent disclosing filling the housing of Deeren with blocking medium. However, as taught by Neidorf filling the air spaces of the glass rods that are bundled to be cut, will prevent the glass rods from slipping and vibrating when being cut (Col. 2, lines 17-32). Therefore at the time the invention was made, it would have been obvious to a person of ordinary skill in the art to have filled Deeren's air spaces with a blocking medium as taught by Neidorf in order to prevent the vibration and slipping of the glass rod while being cut.

As for claim 3, the blocking medium is removed in order to use the glass rod pieces (See Neidorf Col. 3, lines 14).

3) Claims 1, 6-12, and 18-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's admitted prior art (PAT) disclosed in paragraph 3-4 of the specification in and in view of Dereich (US 2,964,443). As noted above in paragraph 1, the PAT teaches of individually manufacturing GRIN lenses. The PAT is silent teaching

placing the glass rod between a mat to form a single unit. However, as taught by Dereich, simultaneously cutting a plurality of glass rods can be achieved by placing the rods between a mat (See claim 1 and figure 1). At the time the invention was made it would have been obvious to a person of ordinary skill in the art to have manufactured the GRIN glass as taught by PAT using Dereich's method in order to increase the production of glass rod pieces by simultaneously cutting a plurality of glass rods. Furthermore, in retaining the glass rod pieces between the mat, conventional process such as finishing the slices to a desired thickness and surface finish as noted by PAT, allows for the simultaneous treatment of a plurality of rod pieces and hence increase production of GRIN lenses.

As for claim 7, it is expected that the mat would be removed from the glass rods in order to use them.

As for claim 8, the mat is a plastic film (See figure 1).

As for claim 9, the substitution of plastic sheet with a glass sheet is an obvious modification to one ordinary skill in the art in order to reduce vibrations of the glass rods when being cut.

As for claims 10-12, the PAT discloses the claimed steps.

***Allowable Subject Matter***

Claims 13-16 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: The cited prior art fails to disclose or reasonably suggest finishing the slices step comprises forming a facet angle on at least one of the slices.

***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. References B-C in the enclosed PTO-892 have been cited to show the state of the art.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Carlos Lopez whose telephone number is (703) 605-1174 and after Dec. 18 2003 calls should be directed to (571) 272-1193. The examiner can normally be reached on Mon.-Fri. 8am - 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Griffin can be reached on (703) 308-1164 and after Dec. 18 2003 calls should be directed to (571) 272-1189. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

CL

11/20/03



PETER CHIN  
PRIMARY EXAMINER